

Diptera from the Philippine Islands

brought home by Dr. Carl Semper,

and described by

C. R. Osten Sacken.

P r e f a c e.

Up to the present time only a few diptera from the Philippine Islands have been described. In Wiedemann I find but a single species from that region; Macquart and Walker (in his List of the Diptera of the British Museum) have a few more; Schiner and Thomson published those brought home by the naturalists of the „Novara“ and the „Eugenia“. In all, I find fifty two described species, the list of which will be given below.

The collection formed by Dr. Carl Semper, now Professor in Würzburg, during his residence in the Philippines (1859—64) contains about 250 species, and enables us for the first time to form some idea of the character of the fauna. This collection was entrusted in 1865 to the able hands of my friend Professor Bellardi in Turin, and it is very much to be regretted that other occupations prevented him from accomplishing his purpose to describe it. In November 1880 it came into my possession. — While still in the hands of Prof. Bellardi, the collection was sent by him to Mr. Walker in London for the purpose of comparing the specimens with those in the British Museum. Mr. Walker mentions this circumstance (J. Proc. Lin. Soc. IX, p. 1) and introduces the species identified by him in his „Synopsis of the Diptera of the Eastern Archipelago, discovered by Mr. Wallace“ (l. c. p. 7 and the following, fourth column, Philippines). The species thus identified however were few in number, and the identifications, even of Mr. Walker's own species, were far from trustworthy. I will discuss them in the proper places.

In preparing the present work, I have followed the same rules as those which I explained in the Preface to my „Enumeration of the Diptera of the Malay Archipelago etc.“ (Annali del Museo Civico Sc. Natur. di Genova, Vol. XVI). I consider the description of a limited faunal collection from a little-known region, as being merely preliminary work, preparing materials for systematic monographs. The final descriptions of species must be comparative ones, based upon the knowledge of all or nearly all the species of a given region. For this reason, I confined myself to describing the most striking forms only, and did not deem

it my duty to describe as new, every specimen that I could not determine. A peculiar difficulty, attending the study of the diptera in the large groups of islands of South Eastern Asia, consists in the local varieties, which seem to exist on different islands. In several instances I have been in doubt, whether to regard them as distinct species, or as mere varieties; (for instance *Rosapha habilis* Wk. and *R. bicolor* Bigot; the specimens of *Chrysopila ferruginosa* Wied. with brown incisures on the abdomen, and those without them etc.). Such questions will be easier to solve in a special monograph, based upon more abundant materials.

Incidentally, I have inserted general observations on genera, groups and families, which I thought might be useful to the future worker in the same direction. The synoptic tables which I give, will save him some labor; but must be used with caution, as they have of necessity been prepared either from notes, taken in different collections, or merely from descriptions.

It would be premature to found, upon such small materials, a final opinion on the relation of the dipterous fauna of the Philippine Islands to that of the Malay Archipelago. Thus much is evident, that the relationship is considerable. Both faunas agree in the large representation of certain groups of diptera (for instance the genera *Laphria*, *Promachus*, *Ommatius*, *Milesia*, the family *Ortalidae*), as well as in the scanty representation of other groups (the *Dasypogonina*, with the exception of a few genera, like *Leptogaster* and *Damalis*; the whole family *Bombyliidae*). Species widespread over South-Eastern Asia, occur here also (*Chrysops dispar*, *Chrysopila ferruginea*, *Psilophus vittatus*, *Syrphus aegrotus*, *Eristalis errans*, *Ochromyia ferruginea*, several *Luciliae*, *Scholastes cinctus*, *Nerius fuscus* etc.). Several forms of an apparently more restricted area are common to the Islands and to Amboina (the genera *Scamboneura* and *Damalina*), to Celebes (the genera *Rosapha*, *Telostylus*; the species *Sphyracephala cothurnata*, *Diopsis subnotata*, *Tabanus v. d. Wulpi* etc.).

The claim of a fauna to individuality, the degree of its specialization, are more difficult to define, upon such meagre data, than its relationship to another fauna. In the present case, the relationship shows itself principally in a similar distribution of groups; whether the specialization, when better investigated, will assert itself in a large proportion of peculiar species, remains to be seen. In the vertebrata, the specialization of the fauna of the Philippines is very remarkable. According to Mr. A. R. Wallace (*Island Life*, p. 361) about nine-tenths of the mammalia and two-thirds of the land-birds are peculiar species. Such data led Mr. Wallace to believe

„that the Philippines once formed part of the great Malayan extension „of Asia, but that they were separated considerably earlier than „Java and having been since greatly isolated and much broken up „by volcanic disturbances, their species have for the most part been „modified into distinct local species“

(Compare also Wallace, Geogr. Distrib. of Animals, I, 345—349).

The scrutiny of the small collection before me reveals in some groups traces of a rather striking specialization; but whether they will be sustained by further discovery, is still a question. I have been especially struck by the peculiar characters of the Tipulidae: the two species of Libnotes, described by me, have a peculiar coloring, different from that of the eleven known species of the same genus from other parts of South Eastern Asia. Eriocera is a genus abundantly represented in all the tropical regions of Asia and America, but most of the species have only four posterior cells; among two dozen described Eriocerac from S. E. Asia only five species have five posterior cells. Now, both species, which I describe from the Philippine Islands, have five posterior cells. The Ctenophorae (Tipulidae) from the Islands also have some peculiarities in common.

As far as regards the genera, it is the family Ortalidae that seems to be the most specialized. I have been obliged to introduce in it not less than four new genera, all of them remarkable forms, not known before (*Antineura*, *Philocompus*, *Xenaspis*, *Naupoda*). The other new genera introduced by me are:

Scamboneura (Tipulidae), which also occurs in Amboina;

Eurybata (Micropezidae), represented in Amboina by a closely allied form, which I provisionally refer to the same genus.

Notopsila (Ortalidae), merely a new name for *Pachycephala* Dolesch., which is preoccupied. It likewise occurs in Amboina, and is closely related to the Australian *Euprosopiae*.

Asyntona (Ortalidae) from Amboina; I have described it on account of its relationship to *Naupoda*.

That the Islands, especially the Northern parts of Luçon, have some points in common with China is very probable, but hardly possible to ascertain now, on account of the insufficient knowledge of the Chinese fauna. Such points of contact between the two faunas have been shown to exist in the Lepidoptera (Compare the article of Mr. George Semper in the Stett. Entom. Zeit. 1875, p. 409.) I have not been able to obtain data on the other orders of insects.

In the course of this paper I have used the terminology for the bristles, parts of the thorax etc. adopted by me in my recent paper: An Essay of comparative Chaetotaxy (Mitth. Münchener Entomol. Vereins, Vol. V).

Heidelberg, Germany, January 1882.

C. R. O. S.

List of the species previously described from the Philippine Islands. (Those marked with a star are represented in Professor Semper's collection.)

- Corethra manillensis* Schin. Novara, 30.
Chironomus trochanteratus Thomson, Eugenie's Resa, 445.
Tanypus manillensis Schiner, Novara, 26.
Chrysomyia annulipes Thomson, l. c. 461.
Odontomyia ochropa Thoms., l. c. 456.
 „ *claripennis* Thoms., l. c. 456.
Nemotelus albiventrus Thoms., l. c. 462.
 * *Ephippium maculipenne* Macq., D. E. Suppl. IV, 54.
 * *Ptilocera smaragdina* Walker, List etc. III, 525.
Phyllophora bispinosa Thoms., l. c. 454 (Syn. of *Biaestes indicus* Wk.)
 * *Calochaetis bicolor* Bigot, Ann. Soc. Ent. Fr. 1879 (*Calochaetis* Syn. *Rosapha* Wk.)
Tabanus manillensis Schiner, Novara, 84.
Chrysops manillensis Schiner, Novara, 104.
Diabasis flavipennis Macq., D. E. Suppl. IV, 35.
 * *Thereva lateralis* (Esch.) Wied. A. Z. I, 231.
Anthrax umbrifer Walk. List etc. II, 237.
 * *Laphria dimidiata* Macq. D. E. Suppl. I, 72.
 „ *Taphius* Wk. List etc. II, 380 (perhaps the same as *L. dimidiata*?).
 * *Philodicus longipes* Schiner, Novara, 179.
Erax integer Macq. D. E. Suppl. I, 81.
 * *Promachus forcipatus* Schin., Nov., 178.
 „ *maculosus* Macq. D. E. I, 2, 100 (*Trupanea*).
 * „ *manillensis* Macq., D. E. I, 2, 194; Suppl. I, 79 (*Trupanea*).
 „ *varipes* Macq., D. E. I, 2, 97 (♀ Bengal); Suppl. I, 79 (♂ Manilla) (*Trupanea*).
Eristalis chalcopygus Wied., A. Z. II, 178.
 „ *Plistoanax* Walk., List. etc. III, 628.
 „ *Babytace* Walk., l. c. 629.
 „ *Agyrus* Walk., l. c. 629.
Scopelia spinicosta Thoms., Eng. R. 528.
Musca niveisquama Thoms., l. c. 547.
 „ *bivittata* Thoms., l. c. 547.
Rutilia dubia Macq., D. E. Suppl. I, 182.
Anthomyia manillensis Frnf. Verh. Z. B. Ges. 1867, 449.

- Lispe grandis* Thoms., l. c. 561.
Somomyia tagaliana Bigot, Ann. Soc. Ent. Fr. 1877, 44.
Lucilia philippensis Macq., D. E. II, 3, 146.
Sarcophaga frontalis Thoms., Eug. R. 535.
 „ *spininervis* Thoms., l. c. 538.
Coenosia picicrus Thoms., l. c. 558.
Lauxania latifrons Thoms., l. c. 567.
Sepsis linearis Wk., List etc. IV. 998.
Calobata coarctata Wk., J. Pr. Lin. Soc. V. 298.
Lamprogaster placida Wk., List etc. IV. 802 (Chromatomyia).
 **Stenopterina abrupta* Thoms., l. c. 578 (Syn. of *S. eques* Sch.)
Dacus trivittatus Wk., List etc. IV. 1072.
 **Herina fusca* Thoms., l. c. 575 (belongs to the Genus *Rivellia*).
 **Acinia stellata* Macq., D. E. Suppl. IV. 293.
 **Trypeta Elimia* Wk., List etc. IV. 1033.
 **Diopsis subnotata* Westw., Cab. Orient. Ent.
Chlorops vittipennis Thomson, Eug. R. 604.
Ephydra pleuralis Thomson, l. c. 591.
Notiphila sternalis Thomson, l. c. 593.
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The following species are mentioned as having been received from the Philippine Islands, although the specimens originally described came from other localities.

- Microstylum dux* Wied., A. Z. I, 568 (China), in Macq. D. E. I, 2, 29 (Manilla), where Macquart confuses it with *Dasyp. chinense* Wied.
Hoplistomera serripes Macq., D. E. I. 2, 60 (Guinea, Senegal) and Suppl. I, 71 (Manilla). This, of course, requires confirmation.
Celyphus obtectus Dalm. and *C. scutatus* Wied. in Walker's List etc. IV, 1138.

The following names I find in the column „Philippines“ of Mr. Walker's Synopsis etc. (l. c.) without any other authority for the statement, neither in the previous literature, nor in Dr. Semper's collection:

- Ommatius retrahens, nanus; Idia prolata; Musca favillacea; Lonchaea punctipennis; Achias maculipennis; Discomyza obscurata; Nycteribia dubia.*
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The Diptera of the Philippine Islands.

Tipulidae.

Dicranomyia saltans Dolesch. 2 Bijdr. 14, Tab. II, f. 3 (*Limnobia saltans*; Java). —

Remarkable for the unusual shortness of the cells in the apical portion of the wing and the slenderness of the legs. The venation and the absence of spurs and empodia prove it to be a *Dicranomyia*. Doleschall calls the antennae 16-jointed; as far as I can discern, the only antenna of my only specimen has the normal number of 14 joints. According to the same author, this species is very numerous during the season of the dry monsoon; it is often found in dwellings, principally in the corners, in large numbers, dancing up and down in the air; they keep so close together that they seem to hold each other in dancing, and to form a regular chain.

Libnotes Semperi n. sp. ♀. *Thorax bright orange; abdomen deep black; wings uniformly brown.* — Length: 11—12 mm.

Head reddish-brown; rostrum, palpi and antennae black. The whole thorax, including coxae, bright orange. Halteres brown, extreme base orange. Abdomen deep velvet black, except the extreme base, which is orange. Legs brown. Wings uniformly brown; bases of the 2nd and 3rd post. c. on the same line; first vein incurved towards the second. — A single female.

Libnotes termitina n. sp. ♂ ♀. *Uniformly yellowish-orange; extreme tip of the abdomen black; wings brown.* Length: 11—12 mm.

Antennae black (reddish at the base in one of the specimens); rostrum brownish; palpi brown; halteres with a brown knob; stem paler; legs brown; femora more or less yellow, but brown towards the tip. In the male, the genitals are deep-black, in the female, the last abdominal segment, although the valves of the ovipositor have the usual, brownish-ferruginous color; they are very short. Wings tinged with brown (less dark than *L. Semperi*); this color is rather uniformly spread over the whole surface; the apex is slightly darker. First vein incurved towards the second; bases of second and third post. c. on the same line. — A male and a female.

Libnotes familiaris n. sp. ♂. Ochraceous, thorax with a brown stripe; wings hyaline, with a small stigmatic pale brown spot. — Length about 7 mm.

Resembles the european *L. modesta* in its coloring. Head, rostrum, palpi and antennae black (at least apparently so; the head is somewhat injured). Thorax ochraceous-yellow, shining, with a brown stripe in the middle of the dorsum. Halteres brownish. Abdomen and genitals brownish. Legs yellowish brown. Wings altogether hyaline, with brown veins; a small, rounded brownish stigmatic spot at the end of the first vein; the latter is incurved towards the costa and has the crossvein very close by its tip; bases of the 2nd and 3rd post. c. almost on the same line, the 2nd being a little more drawn inwards. — A single male.

Mongoma tenera n. sp. ♂. Head dark brown, antennae and palpi brown, rostrum yellowish; thorax reddish-brown above, more yellowish below; abdomen, including the genitals, brown, the venter yellowish. Wings tinged with grayish; halteres brown. Femora pale brownish; the tip, as well as the remainder of the leg, whitish. — Length 8—9 mm. — A single male.

NB. I have no doubt that this species is congeneric with *Mongoma fragillima* Westwood, Trans. Ent. Soc. Lond. 1881, 364, Tab. XVII, f. 1 (from Mongoma Lobah, tropical Africa). Not only that the generic characters are the same, but even the coloring of the species has many points in common, as for instance, the prevailing of the white color on the legs. There is a slight difference in the venation, the bases of the second and third posterior cells being in a line in *M. tenera*, while in *M. fragillima* the base of third p. c. is more drawn out in the proximal direction; the posterior crossvein in the former is a little before the discal cell, while in the latter it coincides with its proximal end.

The other generic characters of the species before me may be defined as follows:

General habit of a *Dicranomyia*, that is, its slenderness and delicate structure. Head small, rostrum short, palpi short, their last joint very short; eyes glabrous, separated by a narrow front; antennae 16-jointed; bent backwards, they would reach a little beyond the root of the wings; joints of the flagellum oblong, of nearly equal length, except the first, which is a little longer; short-verticillate; prothorax well developed, prolonged in a short neck; mesonotum gibbous; abdomen elongated, slender, forceps of the male small, slightly incrassate; legs exceedingly long (the femora alone are about $1\frac{1}{2}$ the length of the

body) and slender; tibiae without spurs; unguis minute, empodia not perceptible; wings about as long as the abdomen; venation as explained above.

There is another species still, which very probably belongs here; it is the *Cylindrotoma albitarsis* Dolesch. 2 Bijdr. 15, Tab. IV, f. 1 from Java. The likeness of the venation between Dr. Doleschall's and Prof. Westwood's figures is obvious, and consists principally in the immediate contact of the submarginal with the discal cell, involving the absence of the small crossvein, and in the presence of the two crossveins ¹⁾ inside of the marginal cell. The difference between them is, that in Doleschall's figure there is one cell less; and assuming that this figure is correct, we may express this difference by saying, that in Mr. Westwood's figure there are four posterior cells, in Doleschall's only three; or, should we adopt a different interpretation of the veins, that in Doleschall's figure the submarginal cell is wanting. Both alternatives represent a form of venation which is of very rare occurrence among diptera, and we must suspend our judgment on this point, until we have an opportunity of seeing the insect from Java, described by Doleschall. But in the mean time, the presence, in the three species of the extraordinary crossveins in the marginal cell, the unusual length and slenderness of the legs common to them, and indicative of the habit of aerial dancing, (attributed by Doleschall to his *C. albitarsis*), the white tarsi, also common to the three species, all these characters tend to establish a very strong presumption in favor of their generic identity. ²⁾

A fourth species, which may claim a relationship with the other three, is the *Limnobia Trentepohlii* Wied. I, 551; Tab. VI, b, fig. 12 (Sumatra). Here, the analogy with Doleschall's figure is very striking: the long oblique crossveins in the marginal cell, only three posterior cells, and a very abruptly curved fifth vein; but the discal cell is open; about the structure of the species too little is said to allow any conclusion.

The position of *Mongoma* in the system is somewhat doubtful. A Tipulid with 16-jointed antennae and without empodia and spurs, must be placed provisionally among the *Limnobia anomala*. Para-

¹⁾ I call them crossveins merely for shortness sake, because one of them may also be considered as a branch of the second vein.

²⁾ Doleschall is probably wrong when he calls the antennae of his *C. albitarsis* 14-jointed; in the same way he counted 16 joints on the antenna of *Dicranomyia saltans*, which has only 14; and 16 joints on that of his *Cylindrotoma ornatissima*, while his own drawing, a copy of which I possess, shows 22 joints, that number being certainly much nearer the truth than the other.

tropesa singularis Schiner, Novara, Tab. II, f. 2 b, (South America), which I also refer to the *Limnobina anomala*, has the same crossveins in the marginal cell, the same contact between the submarginal and discal cells, and, like *Mongoma*, four posterior cells; but the submarginal cell is much shorter, and the position of the marginal crossvein, with regard to the discal cell, somewhat different. The species, *P. singularis* does not have the length of legs, nor the light, aërial structure of *Mongoma*; it has distinct empodia, which *Mongoma* has not.

Eriocera perennis n. sp. ♂ ♀. Five posterior cells; body black; abdomen with four yellow crossbands; wings brown, with a yellowish-white crossband. Length ♂ 15 mm; ♀ (without ovip.) 18 mm.

Head gray, beset with black pile; antennae yellowish-tawny, the tips brownish. Thorax brownish-black, more brown on the pleurae, beset with black pile; halteres blackish. Abdomen black; segments 2—5 each with a broad reddish-yellow crossband at the base; it is broadest on the 2nd segment, and narrowest on the 5th, where it occupies about one half of the breadth of the segment. The ♂ forceps (somewhat injured in the specimen), seems to be brownish, the appendages at the tip are black. The segment bearing the ovipositor is red. Coxae black, femora yellowish-tawny with black tips; tibiae tawny with black tips; tarsi brownish tawny, the tips of the joints darker. Wings brown, yellowish at base, which color extends some distance along the costa, between the costal and the first vein; a yellowish-white crossband between the first and fifth veins, touching the proximal ends of the second submarginal and discal cells; an ill-defined yellowish-white space at the proximal end of the axillary cell. Five posterior cells; the petiole of the second rather long. Marginal crossvein about the middle of the distance between the proximal end of the first submarginal cell and the tip of the first vein; the tip of the auxiliary vein almost opposite this crossvein. (I do not perceive this crossvein in my male specimen; I suppose that this absence is accidental). — One male, one female.

NB. Two other specimens are a little smaller and have the legs and the antennae almost uniformly brown; the yellow crossbands on the abdomen are narrower, that on the second segment occupying only the proximal half of the segment; the yellow color at the base of the wings does not reach very far. Still another specimen (♀) resembles those two, but has the base of the femora and of the antennal flagellum yellow, and more yellow at the root of the wings. I suppose they are all varieties of *E. perennis*. I also have some specimens

which do not seem to have any yellow crossbands on the abdomen at all; but their abdomen is very much shrivelled and cannot be well examined.

Eriocera mansueta n. sp. ♂ ♀. Five posterior cells; body black; genitals orange red; a yellow crossband on the second abdominal segment; wings brown with a white crossband. Length: about 12 mm.

Body brownish-black; antennae brownish-yellow, darker at base and sometimes at tip; a yellow crossband occupies the proximal half of the second abdominal segment; the other segments are shining at the base, velvet black, opaque on their distal half; genitals orange-red, as well as the segment bearing the ovipositor. Halteres dark-brown. Legs brown. Wings brown, with a white crossband between the first and fifth veins, close by the proximal end of the discal cell. Second posterior cell unusually small, and its petiole long in proportion. (I should not wonder if specimens occurred with only four posterior cells). — Two males, one female.

NB. The antennae of this species and of *E. perennis*, in the male, are of the short kind; not much longer than in the female. —

Tipula pedata (Wied. A. Z. I, 45; Java).

Two specimens from the Philippine Islands answer the description, with some exceptions: „Ein kleiner, fast viereckiger Flecken des Mittelfeldes“ does not exist here. The thorax has three brown stripes; the middle one bears a longitudinal brown line. The front femora have a yellowish-white ring before the tip. The antennae are reddish-brown, the joints of the flagellum dark-brown or black at base. I do not recognize Wiedemann's description of the abdomen. Normal specimens of *T. pedata* must be compared in order to decide of the specific identity.

This species has the complete venation of *Tipula*; the only peculiarity consists in the close approximation of the auxiliary vein to the first vein; it is with some difficulty that the auxiliary vein can be seen at all. — The antennae are 13-jointed, the nasus distinct, the tibiae provided with short spurs etc.

Pachyrrhina laconica n. sp. ♀. The black thoracic stripes are confluent; collare black; metanotum black in the middle, yellow on the sides; abdomen black, with yellow crossbands on segments 2—4. Length about 15 mm. (without ovip.)

Head, including rostrum, bright-yellow; antennae and palpi brownish-yellow. Collare velvet-black; thoracic dorsum black (the usual three stripes being confluent); moderately shining; a large yellow spot each side on the humeri; a smaller one between the thoracic suture and the black scutellum; metanotum with a broad brownish-black longitudinal stripe in the middle; yellow on the sides. Pleurae brownish-black, with several yellow spots: a large one between the root of the wings and the collare; a smaller one near the root of the halteres; a third one above the middle coxae. Halteres yellow. Coxae black, legs brown. Abdomen black; basal half of segments 2—4 yellow; at the base of the fifth segment also, some yellow is visible; the segment bearing the ovipositor, and the narrow one which precedes it, are yellowish-ferruginous. Wings with a pale brownish tinge, more saturate in the costal cell; stigma brown; second post. c. in contact with the discal. — One female.

Pachyrrhina ortiva n. sp. ♀. *Black thoracic stripes confluent; collare yellow in the middle; metanotum yellow, with a black spot posteriorly; abdomen black, with yellow crossbands on segments 2—5.* Length about 13 mm. (without ovip.) —

Head and rostrum bright orange-yellow; a well defined deep black spot on the occiput; antennae yellow, joints of the flagellum, except the first, black at base. Collare yellow in the middle, black on the sides; the usual thoracic stripes coalescent, shining black; a large yellow humeral triangle, has its lower hind angle cut off by the humeral furrow; a small yellow spot between the thoracic suture and the scutellum. Metanotum yellow; a large black transverse spot on its hind margin. Pleurae mixed of black and yellow, the black forming an irregular triangle in the middle. Halteres brownish-red. Abdomen black; segments 2—5 yellow, each with a large semi-circular spot (or crossband attenuated on each side) occupying the whole hind margin; the segment bearing the ovipositor and the narrow segment preceding it, are yellowish-ferruginous. Coxae yellow, with more or less black at the base, especially on the last pair. Legs more or less dark tawny; tips of femora and tibiae brown. Wings with a pale brownish tinge, which is more saturate in the costal cell and more diluted beyond the stigma; a slight brown shadow at the tip; stigma brown. Petiole of the second post. c. very short. — Two females.

NB. At first sight, this species is very like the preceding one; it will be easily distinguished by the color of the metanotum and collare and other characters.

Ctenophora suspirans n. sp. ♂. — *Wings brown, with a white spot in the middle; scutellum black.* — Length 14—15 mm.

The whole body is velvet-black; head yellow, including rostrum and palpi, but the middle of the vertex black; a more or less large brown spot in the middle of the rostrum; some of the joints of the palpi infuscated; the scapus of the antenna is somewhat brownish or yellowish; the flagellum black; a broad yellow stripe occupies a large portion of the pleura; it begins in front of the root of the wing and ends above the middle coxa; above the upper end of this stripe there is a yellow spot on the mesonotum, which may be considered as the prolongation of the stripe; a more or less broad yellow band on the second abdominal segment; it is especially developed on the ventral side; legs black, with a white ring near the root of the tibiae. Wings brown; a hyaline spot at the distal end of the first basal cell; it encroaches a little on the discal and sometimes also on the marginal cell. — Three males.

NB. One of the specimens has the yellow portions of the thorax remarkably pale, almost whitish.

Ctenophora idalia n. sp. ♂. — *Wings brown, with a white spot in the middle; scutellum yellow.* — Length 14–15 mm.

Very like *C. suspirans*, only the scutellum, the base of the femora and the sides of the metanotum are yellow; the hyaline spot on the middle of the wings is larger, and encroaches considerably on the second basal cell, as well as on the marginal; there is a small triangular hyaline spot at the extreme proximal end of the two basal cells. — Rostrum anteriorly, face and scapus of antennae brownish-yellow; front above the antennae black; a yellow crossband reaches from eye to eye across the vertex; back of it, the occiput is again black; the root of the wings, as well as the basal portion of the halteres, are yellow. — One male (damaged).

Ctenophora dolens n. sp. ♂ ♀. *Wings unicolorous, brown.* — Length ♂ 12–14 mm., ♀ (without ovipositor) 15–16 mm.

Whole body velvet-black, except the intermediate segments of the abdomen, which are reddish-yellow; wings uniformly brown; legs black, two basal thirds of the femora yellow; white rings near the base of the tibiae. Head dark brown, including the rostrum; antennae black or brown; in the male, each joint of the flagellum is whitish at the tip; palpi variable, pale yellowish or brownish; halteres brown. The base of the abdomen is black; the three following segments are reddish-yellow; the end, including the genitals, is again black; but the black at the base is variable in extent; in two of the specimens it emits a black dorsal and another ventral stripe, which encroach upon the yellow. — Two males, one female.

Scamboneura

nov. gen.

General appearance of *Pachyrrhina*, from which however it differs in the venation. Rostrum short, with a distinct nasus; palpi long, with a long, whiplash-shaped terminal joint; antennae 13-jointed, once and a half longer than head and thorax together; first joint of the flagellum about twice as long as the first joint of the scapus, cylindrical; the following joints gradually decrease in length and have a very slight swelling at the base, which bears a couple of hairs; the whole flagellum is microscopically pubescent; the 13th joint is much smaller than the preceding one. Legs very long and slender, tibiae with minute spurs, which are more distinct on the last pair. Abdomen moderately club-shaped at the end; the forceps is provided with a pair of small, triangular foliaceous appendages, which resemble those of *Pachyrrhina*. Wings: the venation resembles that of *Dolichopeza sylvicola*, but the praefurca (very short in that species) is entirely obliterated here, and the great crossvein is posterior to the proximal end of the fourth posterior cell; the auxiliary vein is distinct and ends just before the stigma; the anterior branch of the second vein is obsolete, and perhaps represented by a slight thickening at the distal end of the stigma; the discal cell is wanting; the veins, on the distal half of the wing, are finely pubescent.

Fig. 1.



Scamboneura dotata.

The venation, the structure of the antennae and the slenderness of the legs, sufficiently prove the relationship of this genus to *Dolichopeza*.

As far as I remember, the *Limnobia vittifrons* Wk., J. Pr. L. Soc. V, 144 (Amboina), which I saw in the British Museum, is a *Scamboneura*, but I cannot recognise my *S. dotata* in Mr. Walker's description.

Scamboneura dotata n. sp. ♂

Rostrum and palpi yellow; front reddish-yellow with a brown line in the middle; vertex grayish; scapus of the antennae yellow, flagellum brown, except the distal half of each joint which is yellow; the extent of this yellow color gradually diminishes on each successive joint, so

that the last 4 or 5 joints are altogether brown. Thorax with three brown stripes, the intermediate one wedge-shaped, rather broad in front; the edges of these stripes are opaque, while their inner surface is shining, and shows a slight metallic lustre; the narrow intervals between these stripes, as well as a narrow transverse line on the prothorax, are pale whitish-yellow; the same color is more or less visible along the thoracic suture, especially in the middle; the portion of the mesothorax behind the suture, partakes of the color of the thoracic stripes; scutellum brownish, metanotum brown in the middle, yellow in the sides. The pleurae show a mixture of yellowish and brownish, and are slightly pruinose. Halteres with a brown knob. The abdomen seems to be variable in its coloring; in one of my specimens, which shows the color more distinctly, it is reddish-yellow, with a brown stripe along the suture on each side, and a series of large brown spots, one in each of the dorsal segments 2—7, the anterior and lateral sides of the segment remaining yellow; venter altogether yellow; in the other specimen the whole abdomen, including the venter, is reddish brown, except a row of bright-yellow spots along the back, on the anterior margins of the intermediate dorsal segments. I cannot say whether these differences were produced after dissication, or represent varieties; the specific identity cannot be doubtful. Legs pale tawny, tips of femora and of tibiae brownish; tarsi brownish towards the end. Wings hyaline, veins brown; stigma small, pale brownish. — Length 9—11 mm. Two males.

Bibionidae.

Plecia fulvicollis Fab. Numerous specimens.

Mycetophilidae.

Sciara sp. One specimen.

Cecidomyiidae.

A single specimen, belonging to Winnertz's group I (three longitudinal veins, the third being forked). Only three joints of the flagellum are present (the rest being broken), but these have a peculiar structure, slightly resembling those of *Nephrotoma*.

Culicidae.

Culex several specimens, damaged.

Megarrhina, one male; determined by Walker as *M. immisericors* Wk., although abdomen and legs do not agree with his description. It may be *amboinensis* Dol., although the agreement is not perfect.

Tabanidae.

Haematopota lunulata (Macq.) v. d. Wulp, Sum. Exp. Tab. I, f. 14.

Haematopota sp.?

All the specimens before me have the design on the wings like the above-quoted figure of Mr. v. d. Wulp; but some of them have the antennae reddish, except the latter part of the 3rd joint, which is black; and, at the same time, two whitish rings on the hind tibiae; the other group of specimens has altogether black antennae and only one white ring near the base of the hind tibiae. Neither of them agrees entirely with Macquart's description.

Chrysops signifer Walk. J. Pr. Lin. Soc. V, 277 (Báthian). I found the species thus determined and the specimens (♂ ♀) agree with the description. They vary in size very much. About *Chr. unizonatus* Rond. I took the following note when I saw the type in Genoa, a single specimen: „very like signifer Wk., only face altogether yellow; first abdominal segment yellow. May be only a paler variety.“

Chrysops dispar (Fab.) Wied. A. Z. I, 196. I believe *C. impar* Rond. Ann. M. C. Gen. VII, 460, to be the same as *dispar*; I have seen the types.

Tabanus. There are about a dozen species in the collection, most of which it would be hopeless to recognise among the 120 described species of this genus from South-Eastern Asia, as they show no striking distinctive characters. Five of the species belong in the group with a very narrow (♀) front, and a narrow frontal callus, coalescing with a linear prolongation above, a group abundantly represented in the Austro-Malayan Archipelago. Three species have the front and callus of the ordinary structure, and resemble, in their coloring, some European and N. American species. The two following species deserve a special mention.

Tabanus van der Wulpi n. sp. ♂ ♀.

Syn. *Tabanus pictipennis* v. d. Wulp, Tijdschr. v. Ent. XI, 100, Tab. III, f. 1, 2 (Celebes).

Mr. v. d. Wulp's figure of this species is unmistakable; some discrepancies in the description are due to the fact, that he had a general, and therefore not fully colored individual. I owe this explanation to himself, after he had kindly compared one of my specimens with his own type. The name *pictipennis* being preoccupied by Macquart

(4. Suppl. 32), I take pleasure in dedicating this fine species to its first describer; his description I translate, supplementing it from my specimens.

„Ochraceous, front very narrow, with a median blackish line; eyes glabrous; antennae testaceous [tip of the third joint black]; anterior margins of [some of] the abdominal segments dark brown; legs black; wings with two brown crossbands; costal cells saturate yellow.“ — Length: ♂ 18 mm; ♀ 20–23 mm.

Head ochraceous-yellow, with hairs of the same color on the underside; the front (♀) very narrow, linear, with a darker, raised, central line, which is only slightly expanded below. Head of the male of moderate size, flattened above; the dividing-line between the upper, large, and lower, small facets, very marked. Eyes glabrous, bronze-color, without markings. Antennae yellowish-red, the tip of the third joint black or dark brown; first segment drawn out in a point on the upper side; the second very short, prolonged above in a point; the third but moderately excised. Palpi reddish-yellow, beset with minute black hairs, mixed with fulvous ones in the ♀; in the male there are some few black hairs at the tip only. Thorax and scutellum blackish, which color is entirely concealed under a dense ochre-yellow pollen; pleurae with ochre-yellow pile. Abdomen brownish-red, the hind margins of the segments beset with golden-yellow pile; the anterior portion of the segments is more or less dark brown, the extent and intensity of this color varies in different specimens; generally the first and second segments have no brown; on segments 3–6, sometimes the anterior half, sometimes more, is more or less dark brown, the brown band being more or less distinctly narrowed in the middle. The male specimen has comparatively little brown. Venter, except at the base, dark brown or black; hind margins of the segments yellowish-red, beset with golden-yellow pile. Coxae of the same color as the thorax; legs dark-brown or black, with black pile. Halteres reddish-yellow. Wings: proximal third and especially the costal cells tinged with yellow; a brown spot, in the shape of a crossband, covers the central crossveins, coalescing anteriorly with the saturate yellow of the costal cells, and attenuating posteriorly without reaching the posterior margin; in the distal third of the wing a broad brown crossband reaches from the anterior to the posterior margin; its distal side shows a triangular grayish-hyaline excision, within the second submarginal cell; the proximal end of this cell, however, is brown; first posterior cell closed, petiolate at the end; anterior branch of the third vein without stump of a vein; (one of the specimens has a mere rudiment of a stump). — One male; four females.

Tabanus Ixion n. sp. ♂. Dark brown, abdomen and legs black; wings brown; the tip and a part of the discal cell, hyaline. Length: 15—15 mm.

Palpi and face dark-brown, with some black pile; head (♂) flattened from above; the division between the large and the small facets very distinct. Antennae dark brown or reddish-brown; third joint long and narrow; its upper angle projecting squarely; the excision of its upper side very shallow. Thorax dark brown, with black pile, especially on the pleurae; abdomen black, shining; legs black; halteres with a yellow knob. Wings brown, axillary angle paler; apex hyaline within the second submarginal cell, the proximal half of which is brown, a hyaline spot in the middle of the discal cell, both ends of which are brown; on both sides of that hyaline spot the brown ground color of the wing is somewhat yellowish; first posterior cell open, although somewhat coarctate towards the tip; no stump of a vein. — Two males.

Stratiomyidae.

Rosapha bicolor (Calochaetis bicolor Bigot, Ann. S. Ent. Fr. 1879, 189, Manila). I have already said about the specimens (Enumeration etc. p. 26) from the Philippines that they differ from *R. habilis* Walker (Celebes) in having the brown stigma separated from the subapical brown cloud by a broad hyaline interval; the intermediate pair of spines of the scutellum is comparatively smaller. They may be a different species.

Negritomyia maculipennis (Ephippium maculip, Macq. D. E. IV. 54, Manila). A dozen (♂ ♀) specimens. Seems to be a common and wide-spread species; the abdomen is more distinctly bluish than it was in the specimens from Ternate and New-Guinea mentioned by me in the Enumeration etc. p. 23.

Acanthina azurea (Gerstaecker, Linn. Ent. XI, 334; Ceylon)? I am very doubtful about the determination of this species, as the description disagrees in several points. The vertex is black, not reddish; the front and hind tarsi are black or dark brown; the description of the pattern of the thorax disagrees etc. Three specimens.

Sargus spec. One specimen. Closely related to, if not identical with the species from Celebes which, in the Enumeration (p. 28) I called remeans Walk. with a doubt. Frontal triangle, face and antennae are more reddish; the front tibiae paler, the scutellum more bluish etc.

Ptecticus sp. A single specimen, which Mr. Walker had identified with his *Sargus rogans* from the Aru Islands.

Ptilocera amethystina Sn. v. Voll. — Three ♂, 6 ♀. The females have the anal and axillary cells and the proximal end of the fourth post. c. hyaline, while in the males these parts are brownish. In the specimens which I have seen from Celebes and New Guinea this character was not sexual; at least most of the females had no hyaline space in the anal portion of the wing. I am not satisfied yet about the specific distinctness of this species from *P. smaragdina* v. Voll. (Compare Enumeration etc. p. 24).

Musama pauper Walk. J. Pr. Linn. Soc. VII, 205 (Mysol). — A single specimen thus determined by Mr. Walker; but the description disagrees from it in many points.

Leptidae.

Atherix limbata n. sp. Wings subhyaline as far as the proximal end of the discal cell; tinged with pale brownish on the distal half. — Length about 9 mm.

Front and vertex black, the former slightly whitish above the antennae; face black, with a whitish reflexion; antennae brownish-yellow. Thorax blackish-gray, whitish-hoary on the pleurae and with whitish reflexions on the mesonotum; humeri, the posterior part of the mesonotum and the scutellum brownish-yellow. Halteres yellow with a brown knob. Abdomen brownish-yellow; the base, a dorsal stripe on segments 2 and 3, and the greater part of segments 4, 5, 6, are dark brown (this is the case in one of the specimens; in the other the abdomen is more uniformly brownish-yellow). Front coxae blackish, whitish-hoary; the other coxae brown; femora brownish-yellow, the hind ones with a broad brown ring before the tip; tibiae and tarsi dark-brown; intermediate tibiae yellowish-brown. Proximal half of the wings, as far as the proximal end of the discal cell, subhyaline; distal half pale brownish, gradually turning into grayish towards the tip; costal cell and surroundings of the stigma, yellowish. — Two females.

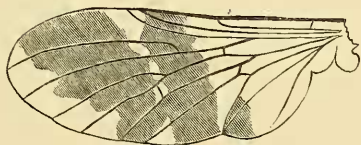
NB. I. *Atherix nigritarsis* Dol. 3 Bijdr. 20 (Amboina) is closely related to this species, as I can ascertain, not only from the description, but from an unpublished colored drawing in my possession. The principal differences appear to be: the hind femora of *A. nigritarsis* have no broad brown ring before the tip; the scutellum is of the same color as the mesonotum; the abdomen has brown crossbands, and not a longitudinal brown stripe.

NB. II. Mr. Walker had labeled *A. limbata* with the generic name *Suragina* Walk. I am not prepared either to maintain or to reject this genus; but it is certainly most closely allied to *Atherix*, which Mr. Walker did not even notice (J. Pr. Lin. Soc. IV, 110). It remains to be proved whether *A. limbata* is really congeneric with *Suragina illucens* (Celebes) the type of the genus.

Chrysopila correcta n. sp. ♀. Wings subhyaline, their distal half with two brown, sometimes nearly coalescent crossbands, which leave but a narrow hyaline margin between the apex and the third posterior cell. — Length 7–8 mm.

Head yellowish-brown; sides of the face whitish; antennae brownish-yellow, third joint brown; arista brown, paler at base; palpi brown. Thorax brown, more or less yellowish on and around the humeri. Abdomen reddish-yellow above, with ill-defined brown spots in the middle of the segments; venter brown. Thorax and abdomen are clothed with a delicate golden pubescence. Halteres reddish-yellow, with a brown ring before the knob. Front coxae yellowish; the other coxae brown; legs brownish-yellow, tibiae and tarsi slightly darker. Wings yellowish-hyaline; a brown cloud on the distal end of the anal cell; two broad brown crossbands on the distal half of the wing; their interval being narrow, they have one or more points of contact (so that in different

Fig. 2.



Chrysopila correcta.

specimens this interval appears either as a subhyaline narrow crossband, or as a series of irregular subhyaline spots); the edges of the bands are jagged; the proximal edge of the inner crossband begins at the anterior margin between the ends of the auxiliary and first veins; it ends in the fifth posterior cell, near the end of the fifth vein. — Two females.

NB. In the structure of the face this species differs from the European species of *Chrysopila*; its middle portion is very large and projects over the palpi; the latter are very hairy.

I cannot identify *C. correcta* with *C. maculipennis* Wk. J. Proc. Lin. Soc. I. 118 (Borneo), although they have some points in common.

Chrysopila ferruginosa Wied. Auss. Zw. I. 224. Seven specimens of this species which is common in the whole Austro-Malayan Archipelago. These specimens have no dark incisures on the abdominal segments. (Compare my Enumeration etc. p. 31.)

Chrysopila. Three other species of this genus are represented by single specimens in very bad condition. These species are small, have a blackish-gray body, clothed with metallic scales and subhyaline wings.

Asilidae.

Leptogaster princeps ♀. Black, shining, with metallic bluish or purplish reflexions, especially on the abdomen; legs more or less reddish; wings brown with violet reflexions. — Length: 24—30 mm.

Face silvery, except immediately above the mouth, where it is shining black; front and vertex black, shining; occiput grayish-silvery; antennae reddish-brown, second joint yellowish. Mesonotum black, shining, with a very slight bluish opalescence; a border of a light grayish, not very dense pollen runs above the dorso-pleural suture and also covers the scutellum and metanotum; pleurae subopaque, brownish-pollinose. Abdomen black, shining, with distinct bluish or purplish reflexions, some reddish shades on the ventral side vary in extent in different specimens. Halteres either altogether dark brown, or knob reddish. Legs more or less dark brown, with a very slight metallic purplish reflexion; hind tibiae more or less reddish, as also the end of the hind femora, where the reddish sometimes reaches beyond the middle. Wings brown, with purplish reflexions; proximal end of the second posterior cell but very little nearer the root of the wing than the proximal ends of the second submarginal and third posterior cells; contact of the fifth post. c. with the discal very short; anal cell closed, petiolate at the tip. — Three females.

NB. This fine species differs in several respects from the European species of the genus; the third antennal joint is more than three times as long as the scapus, narrow, almost linear, a little attenuated towards the tip; the two-jointed style is about one fourth the length of the third joint; the mystax is composed of a few weak, inconspicuous hairs; the anal cell is closed. The characteristic thoracic bristles of this genus are also quite conspicuous in the present species: I mean the praesutural bristle and the intra-alar, one on each side.

Leptogaster sp. — A single male. An inconspicuous species; mystax weak, as in the preceding species; anal cell closed. The antennae are broken.

Damalis.

The characters of this genus have been enumerated by Dr. Loew (Südafr. Dipt. 107) and v. d. Wulp (Tijdschr. XIX, 140). I have five asiatic species before me; four from the Philippines, and one from Ceylon (*D. fulvipes* Westw.). These species seem to differ from the african ones by their mystax, which consists of only four bristles, placed in a row above the oral margin, while in the african species the mystax seems to be more bushy and to extend farther up towards the antennae. However *D. Felderi* Schin. from Ceylon, has the mystax more like the african species; (I judge of all these species merely from the descriptions). The facial swelling in all my species is very weak; it seems to be more prominent in the african ones. In *D. fulvipes* Westw. the contact between the fifth post. c. and the discal is merely punctiform (in other words, the fourth posterior cell is not petiolate); in the species from the Philippines that contact is moderately broad, (that is, the fourth post. c. has a petiole which is shorter than the posterior crossvein). Mr. v. d. Wulp described *D. marginata*, which has the anterior crossvein opposite the middle of the discal cell, and in which the veins, issuing from the discal cell (externomedial veins) are straight or nearly so. Usually however the anterior crossvein in *Damalis* is beyond the middle of the discal cell, and the externomedial veins, especially the first, are more or less arcuated.¹⁾ The four species from the Philippines are more slender than *D. fulvipes*; the abdomen is flatter; the hind femora less stout; the same differences seem to occur among the african species (comp. Loew, l. c. 111, note to *D. capensis*). The majority of the asiatic species have the hind femora armed with strong spines on the underside; however, *D. nigella* v. d. W., which I believe to recognize in one of my species from the Philippines, is without them; the absence of spines seems to occur more often among the african species. All my species have, on the underside of the middle tibiae, several (about four?) long, erect hairs, diminishing in length from the proximal to the distal end of the tibia. None of the species before me have, at the end of the middle tibiae, the prolongation („Zapfenartiger Fortsatz“) sometimes existing there; comp. for instance the descriptions of *D. Felderi* Schin. from Ceylon, and of *D. speciosa* Lw. from S.-Africa.

I give below a synopsis of all the described asiatic species including my own; it must be borne in mind that it was drawn up merely from the descriptions of most of the species, and may therefore contain inaccuracies.

¹⁾ Macquart figures the wing of *D. tibialis* as having the crossvein opposite the middle of the discal cell; but is that figure correct?

Synopsis of the Asiatic species of the genus *Damalis*.

I. Wings uniformly brown.

Antennal scapus yellow; hind legs black;

length $1\frac{1}{2}$ lines *erythrophthalma* Dol.
(3^{de} Bijdr. 19; Amboina.)Antennae black; length 3— $3\frac{1}{2}$ lines.Body cupreous black *fumipennis* Walk.
(List, VII, 765; Java.)

Body reddish-ochraceous; femora black;

except at the base *lugens* Walk.
(J. Pr. L. Soc. V, 237;
N. Guin.)Body brown, grayish-pollinose; fem. red *imnerita* O. S." " " legs black *fuscus* Walk.
(List etc. II, 481; Bengal.)

II. Wings with the proximal half brown, the distal hyaline.

Abdomen with metallic blue or purple

reflexions *tibialis* Macq.
(D. E. I, 2, 154; East Ind.)
myops W.
(A. Z. I, 417; Sumatra.)Abdomen yellow *planiceps* W.
(A. Z. I, 417; East Ind.)
fulvipes Westw.
(Ann. Soc. Ent. Fr. 1835;
Ceylon.)

Abdomen rufous „utrinque nigro-sub-

maculatus“ *major* v. d. W.
(Tijdschr. XV, 143; Borneo, Sumatra.)

III. Wings pure hyaline.

Hind femora unarmed *nigella* v. d. W.
(Tijdschr. XV, 143; Bel
Menado.)Hind femora spinous *vitripennis* O. S.

IV. The coloring of the wings does not belong to any of the previous groups.

Small crossvein opposite the middle of

the discal cell *marginata* v. d. W.
(Tijdschr. XV, 142; Borneo.)

Small crossvein beyond middle etc.

Wings pale brownish-yellow.

Abdomen reddish-yellow with black

spots on each side *maculata* W.

(A. Z. I, 416, Java.)

signata Walk.¹⁾

(Trans. Ent. Soc. Lond.

N. S. V, 283; Burmah.)

Abdomen reddish-yellow without

black spots *pallida* v. d. W.

(Tijdschr. XV, 143; Borneo, Sumatra.)

Abdomen bronze color *Andron* Wk.¹⁾

(List etc. II, 480; China.)

Abdomen blackish-brown *Felderi* Schin.

(Verh. Z. B. Ges. 1866, 365; Ceylon.)

Wings marked with brown

near the anterior margin *grossa* Schin.

(Novara, 161; China.)

on the apex *siagonensis* Bigot.¹⁾

(Ann. Soc. Ent. Fr. 1878, 443; Cochinchina.)

Damalis immerita n. sp. ♂ ♀. *Wings brown; legs dark red; hind femora spinous on the underside; body dark brown, thorax with fulvous pollen on the sides.* — Length: 12—14 mm.

Face black, somewhat shining above the mouth; brownish pollinose under the antennae; the same pollen covers the front, except the ocellar tubercle; mystax black; antennae black; occiput with brownish-yellow pollen. Thorax densely clothed with pale fulvous, in some places brownish-fulvous, pollen; the disc of the thorax dull brown, which color forms a broad stripe in the middle, and two lateral stripes, interrupted by the pollinose suture. Abdomen dark brown, the base of the second segment and sometimes the hind margins of all the segments more or less reddish; male hypopygium brownish-red; venter grayish pollinose, with black spots on the sides of the segments; halteres brownish-yellow; legs, including the hind coxae, dark red; extreme tips of the femora black, especially on the anterior side; tarsi, especially the last pair, brownish; hind tibiae distinctly curved; hind femora stout, with a double

¹⁾ I do not know about the position of the small crossvein of these three species.

row of short, strong spines on the underside. Wings tinged with brown, which is slightly paler towards the posterior margin; anterior crossvein beyond the middle of the discal cell; the proximal end of the second submarginal cell is but little more distal than that of the second posterior. — One male, two females.

NB. This species can only be compared to *fumipennis* Wk., *fusca* Wk., and *lugens* Wk. But the former is said to have a „cupreous black“ abdomen, *lugens* black femora, except at the base, and *fusca* altogether black legs.

Damalis vitripennis n. sp. ♂ ♀. *Wings altogether hyaline; hind femora spinous; small crossvein beyond the middle of the discal cell; legs reddish, hind tibiae brown in the middle.* — Length 9–12 mm.

Face black, shining; its upper part, as well as the facial orbits, clothed with yellowish-brown pollen; the front is likewise pollinose, except the ocellar tubercle; antennae black. Thorax clothed with yellowish-gray pollen; a geminate broad brown stripe on the mesonotum, and more or less distinct lateral stripes. Abdomen clothed with brownish-gray pollen, the anterior portion of the segments being more grayish, the posterior more brownish; venter gray, with black, shining spots, one each side, on each segment. Hypopygium of the ♂ yellowish-ferruginous; the last segment in the female black, shining. Halteres brownish-yellow. Legs yellowish, or reddish-ferruginous; the tarsi as well as the tips of the femora and tibiae are darker; hind femora more or less infuscated in the middle and provided with a double row of spines on the underside; hind tibiae curved. Wings pure hyaline, slightly yellowish near the root; anterior crossvein far beyond the middle of the discal cell; proximal end of the second submarginal cell considerably beyond that of the second posterior. — Four males, three females.

Damalis nigella v. d. Wulp, Tijdschr. XV, 143 (Bel Menado). I have one specimen which agrees with the description.

Damalis sp. One specimen, with brownish-yellow wings infuscated at the tip.

Damalina.

This genus was introduced by Doleschall (Derde Bijdr. 19, in Naturk. Tijdschr. Nederl. Ind. Deel XVII, 91; 1858) for a species from

Amboina (*D. laticeps*). As Dr. Semper's collection contains two species of the same genus, I avail myself of the opportunity for characterizing it more completely.

Closely allied to *Damalis*, but easily distinguished by the structure of the third antennal joint, which is much longer than broad, lamelliform, sublinear, and bears an arista at the tip, which is a little shorter than the joint itself; the joints of the scapus are short, bristle-bearing, the second subglobular.

Minor differences from the five asiatic species of *Damalis* which I have before me consist in the following: the anterior crossvein is about the middle of the discal cell, and not beyond it; ¹⁾ the fifth posterior cell is not in contact with the discal; the proximal end of the first submarginal cell is distinctly more proximal than the proximal end of the discal cell; the swelling of the lower part of the face is more abrupt, and the mystax consists of a greater number of bristles. The cilia of the posterior orbit, although very weak, are a little more developed here than in *Damalis*; the trochanters of the hind legs are less developed, the hind femora less stout and unarmed. The venation is very like that of *Holopogon*.

D. laticeps Dol., of which I possess an excellent colored drawing, agrees in the generic characters with the two species described below. In the specific characters, it seems to hold the middle between them, as it has the brownish thorax of *D. Semperi* and the metallic-blue abdomen of *D. cyanella*. My specimen of the latter shows a remarkable peculiarity in its venation: it has only four posterior cells, instead of five, because there are only two veins issuing from the end of the discal cell, instead of three. As I have only a single specimen, and as that specimen has only one wing left, I am not sure whether this peculiarity is not an accidental abnormality. Should it even prove a permanent character, it would not be a sufficient one for the formation of a new genus, as, in other respects, the agreement with *C. Semperi* is perfect.

I do not find *Damalina* mentioned in any of Dr. Schinners lists; it seems to have been overlooked since its publication.

Damalina Semperi n. sp. ♂. Antennae black; arista reddish; head clothed with a fulvous pollen; thorax clothed with a fulvous pollen, or rather a microscopic fulvous pubescence; mesonotum dark brown in the middle, the outline of which color represents the usual thoracic,

¹⁾ *Damalis marginata* v. d. Wulp, Tijdschr. etc. XV, 142 shares this character with *Damalina*.

coalescent stripes; sides of the dorsum fulvous. Abdomen brownish-fulvous, the middle portion of the segments, including the hind margin, more distinctly brownish. Halteres yellowish. Legs brown, shining, clothed with long fulvous pile; coxae fulvous-pollinose. Wings brown, darker towards the base. — Two very imperfectly preserved specimens. — Length 6—7 mm.

Damalina cyanella n. sp. ♀. Head black, grayish pollinose; antennae and mystax black. Thorax dark metallic-blue; humeri, posterior part of the mesonotum, scutellum and metanotum grayish-pollinose. Abdomen metallic-blue, shining above. Halteres with a brownish stem and a reddish knob. Legs black, shining, beset with black hairs, especially the hind tibiae. Wings tinged with brown, the basal portion, before the discal cell is dark-brown, with a bluish reflexion. — A single imperfect female. — Length 6—7 mm.

NB. I have already alluded above to the peculiar venation of my only specimen. The very narrow discal cell emits only two veins at its end, instead of three and thus there are only four posterior cells, instead of five. As the specimen has but one wing left, I am in doubt, whether this is a permanent character or an individual abnormality.

Stichopogon peregrinus n. sp. ♀. Whitish-gray, front, vertex and mesonotum in the middle brownish; antennae black; mystax white; abdominal segments with brown spots in the middle; on the first segment, the spot is small; on the second it is a large triangle, the base of which occupies the whole breadth of the posterior margin of the segment and the tip almost touches the anterior margin; the third segment is almost altogether brown, except an interrupted, narrow margin anteriorly; segments 4 and 5 have brown triangles, like the second segment; segments 6 and 7 are nearly brown, like segment 3; segment 7 is grayish. Venter gray. Halteres yellow; the dark ground-color of the legs is entirely concealed under a gray pollen. Wings subhyaline. — Length 4—5 mm. — One male.

NB. This species differs from its european congeners (at least in the specimen before me) in having the fourth posterior cell not petiolate; it is sessile, as its contact with the second basal cell is almost punctiform.

Laphria. There are a dozen species of this genus in the collection. Their general character is very much like that of the *Laphriae* from the Malay Archipelago. Owing to the large number of species already described and to the insufficiency of many of the descriptions

it is in most cases impossible to determine the species without having type-specimens at hand.

Laphria dimidiata Macq. Dipt. Exot. 1^{er} Suppl. 72 (Philippine Islands).

The description agreeing, and the locality being the same, the identification may be taken for certain. I suspect that *L. Taphius* Wk. List etc. II, 380 (Philippine Islands) is the same species, although the description does not mention the golden hairs on face and thorax. There are numerous ♂ and ♀ specimens; it must be a common species.

Laphria partita Wk. J. Lin. Soc. IV, 105 (Celebes); O. Sack. Enum. 40.

The specimens (3 ♂ ♀) were thus named by Mr. Walker; I have had occasion to compare them with the specimens of *L. partita* from Celebes mentioned in my „Enumeration,“ but did not reach any positive conclusion about their identity or diversity.

Laphria Phalaris n. sp. ♂ ♀. *Fulvous, thorax with black stripes; abdominal segments 1—4 with black triangular spots; segment 5 altogether black; wings with a brown apex.* — Length 15—18 mm.

Elongated and rather slender for a *Laphria*; fulvous, antennae of the same color; third joint slightly brownish, short-lanceolate in shape; mystax golden-yellow, proboscis reddish. Thorax with three broad subcontiguous black stripes; the intermediate one cuneiform, subgeminate; the lateral ones abbreviated in front and interrupted at the thoracic suture; in the ♀ these stripes occupy more space than in the male; sternum black, as well as some portions of the pleurae (more in the female than in the male); the intervals of the thoracic stripes, especially behind the humeri, and also the metanotum, golden-sericeous. Abdomen with a small black spot on the first segment, a distinct triangle on the second; a still larger one on segments 3 and 4; segment 5 altogether black; the end of abdomen, as well as the genitals, yellowish-red. Halteres and legs yellowish-red; the extreme tips of the middle and hind femora infuscated. Wings bright reddish-yellow, with a well-defined brown apex, the proximal limit of which is immediately before the proximal end of the second submarginal cell; first posterior cell broadly open; crossveins, closing the discal and the fourth post. c. parallel, although not forming a straight line. — Three males and two females.

NB. This species has a good deal of *L. concludens* Wk. J. Pr. Lin. Soc. IV, 105; but the description of the abdomen disagrees; be-

sides, if it had been the same species, Mr. Walker would probably have identified it.

L. Phalaris has the antennae of an *Andrenosoma*, without having the coloring, nor the other characters of that genus.

Laphria pseudolus n. sp. ♂. *Altogether reddish-fulvous; the darker color of the thoracic dorsum hardly visible under reddish pollen and pile; legs yellowish red; wings uniformly light brownish-fulvous.* — Length 22 mm.

Antennae rufous, third joint linear, brownish at tip; mystax golden-yellow; proboscis rufous; thoracic dorsum with three broad, subconfluent, very indistinct darker stripes, almost concealed under a brownish-gray pollen and a dense rufous pile; lower part of pleurae and coxae golden-sericeous; the black mesosternum is covered with yellowish pollen. Abdomen uniformly rufous, with rufous pile. Legs yellowish-red; hind femora with a brown spot on the underside, not far from the coxa. Wings uniformly light brownish-fulvous; first posterior cell slightly attenuated at the end; the crossveins closing the discal and fourth posterior cells are parallel, although not in a line. — A single male.

NB. I doubt that the brown spots on the underside of the hind femora are an essential character.

Laphria scapularis Wied. A. Z. I, 516. Agrees with the description, but is larger. — Two females, in one of whom the two crossveins (closing the discal and the fourth posterior cells) are not exactly in a line; nevertheless I believe it to be the same species.

Laphria sp. Exactly like the preceding, but the face with a bright reddish-golden mystax. Two males; in one of them the two crossveins (see above) form a straight line, in the other they are separated by a short interval. Is not the golden mystax a merely sexual character? Both Wiedemann and v. d. Wulp have described only females of *L. scapularis*.

Laphria sp. determined by Mr. Walker *L. dissimilis* Dol.? A single, damaged male. I possess an original colored drawing of *L. dissimilis* by Doleschall, and believe it to be a different, although closely resembling, species.

Laphria, three species, represented by single specimens.

Maira sp. A small, greenish-metallic species, with a golden face. A single specimen.

Ommatius fulvidus Wied. A. Z. I, 420. Must be as common in the Philippines, as in Amboina, Celebes etc.

Ommatius; this genus is represented by six species, besides *O. fulvidus*. I do not attempt to unravel them among the 40 species of *Ommatius* from Austro-Malayan Archipelago already described.

Emphysomera aliena n. sp. ♂. Black, thorax with yellowish-gray pollen on the sides, tibiae reddish-yellow; wings fuliginous, except their axillary portion, which is hyaline. — Length 10–12 mm.

Face and front with grayish-yellow pollen; mystax dense, yellowish-white above the mouth; higher up scattered black hairs; beard yellowish-white; antennae black. Thorax above black, subopaque; pleurae, scutellum, as well as the sides of the mesonotum with yellowish-gray pollen; abdomen black, subopaque, hind margins of the segments faintly reddish; hypopygium of the male black, shining above, reddish brown below; halteres reddish-yellow; all the femora, but especially the hind ones, black, shining; the latter with a row of spines on the underside; tibiae reddish-yellow; the hind ones infuscated at the tip; tarsi brown, reddish-yellow at the base. The anterior margin of the wings slightly expanded in the stigmatic region (♂); the costal cell in the stigmatic region is dark-brown; the region behind it, inside of the marginal and first submarginal cells is tinged with brownish; the remainder of the distal half of the wing is fuliginous; axillary portion of the wing, including the second basal, anal and a part of the fourth and fifth posterior cells, hyaline. — Two male specimens.

NB. The absence of the gibbosity on the face, the stout femora and the club-shaped abdomen vindicate this species as an *Emphysomera*. Dr. Schiner was however mistaken when he said that the anterior alar margin of this genus is never expanded; Mr. v. d. Wulp has described a species which has such an expansion, and *E. aliena* is another. The abdomen of the latter is narrowest in the middle and expanded at both ends.

Promachus manillensis Macq. D. E. I, 194 (Trupanea). Three specimens (♂ ♀).

Promachus forcipatus Schin. Novara, 178. Four specimens (♂ ♀).

Promachus. One species resembles *bifasciatus* Macq. but is certainly different; two or three other species are represented by very badly preserved specimens.

Philodicus longipes Schiner, Novara 179 (Philippine Isl.)
Four specimens.

Itamus, two ♀ closely related to *I. longistylus* Wied., but front side of the hind femora black.

There are about twenty other, badly preserved specimens, representing about a dozen species, that belong in the genera *Asilus*, *Proctacanthus* and *Erax*, or in their vicinity.

Bombylidae.

Argyramoeba distigma Wied. A. Z. I. 309 (Syn. *Anthrax argyropyga* Dol. II Bijdr. 25?) My specimens are males, and therefore agree with Doleschall's description. Wiedemann had a female. The synonymy was suggested by Mr. v. d. Wulp, Tijdschr. XXIII, 166, and seems very probable.

Argyramoeba sp. Similar to the former, but without the two black drops on the hyaline portion of the wing.

Exoprosopa Oenomaus Rond. Ann. Mus. Civ. Gen. VII, 37 (Hyperalonia).

Exoprosopa flaviventris Dolesch. II Bijdr. 24 (?)

Although the descriptions agree, I am by no means certain of the identification of the two above mentioned species. Both resemble *Exopr. Doryca* Boisd. (Syn. *ventrimacula* Dol., *Pelops* Wk. *leuconoe* Jaenn.) very much, but differ as follows (if my identifications be correct):

I. The brown color on the wing covers the proximal half of the discal cell; second posterior cell narrower at its distal end than at the proximal; venter with yellow pile in the middle; the white pile on the two last abdominal segments has the shape of crossbands.

Oenomaus.

II. The brown color on the wings does not encroach upon the discal cell.

1. A spot of snow-white pile on the ventral segments 2—4.

Second post. c. much broader (more than twice) at its distal, than at its proximal end; the white on the two last abdominal segments has the shape of spots, rather than of crossbands.

doryca.

2. Venter almost altogether clothed with yellow pile.

Second post. cell very little broader at its distal end; the white on the two last abdominal segments is in the shape of crossbands.

flaviventris.

Exoprosopa sp. Perhaps small specimens of *Tantalus*?

Therevidae.

Thereva lateralis (Esch. Entomogr.) Wied. A. Z. I, 231. As Eschscholz's specimens came from the Philippines, and as this seems to be a common species, the identification is a very probable one, although there are some discrepancies; for instance the fourth abdominal segment is entirely black, shining. and without any gray posterior margin.

Thereva sp. A single female, very like the preceding in coloring, but the fourth post. c. open and the front black, shining, except its lower part, which is silvery.

Empididae.

Elaphropeza exul n. sp. ♀ Black, shining; mesonotum with microscopic grayish-yellow pile; pleurae and two basal abdominal segments smooth and very shining; the remainder of the abdomen dark brown. Proboscis ferruginous-brownish; palpi brown. Antennae: first and second joints yellow; the tip of the latter and the third joint brown; arista microscopically pubescent. Legs reddish-yellow, smooth; tarsi somewhat brownish; hind metatarsus a little swollen. Halteres pale-yellow. Wings with a slight brownish tinge, veins brown. Length: 2 mm.

NB. I describe this species from a single, badly preserved specimen, on account of the genus to which it apparently belongs. *Elaphropeza* was hitherto represented by a single species, belonging to the north of Europe. *E. exul* seems to share all the characters of *E. ephippiata*, as described and figured in Walker's Ins. Brit. Diptera, Vol. I, Tab. V. f. 4. Above the antennae, the eyes are separated (♀) by a space so narrow that it requires some attention to perceive it; below the antennae, the eyes may be called contiguous for an interval equal in length to the antennal scapus. The third antennal joint is shorter than represented in the above-quoted figure; the arista, on the contrary longer, about twice as long as the three joints of the antennae taken together; seen from the side, the outline of the eye shows a sinus of the lower occipital orbit not represented on the figure, and the interval between the lower corner of the eye and the root of the proboscis is broader; the tip of the first vein is beyond the middle of the wing; that of the second nearer the apex than it is on the figure. None of these differences, it seems to me, has a generic importance.

Hybos spec. Two damaged specimens.

Dolichopodidae.

Psilopus vittatus Wied. A. Z. II, 217. Wiedemann had only the female; although Macquart, D. E. II, 2, 116 describes the

male, he forgets to mention the broad black crossbands on the incisures of the abdominal segments, which distinguish it from the female. Seems to be a common species from the Philippines to Java.

Psilopus longicornis Dolesch. 3^{de} Bijdr. 22 (Amboina). Agrees with the copy of Doleschalls original drawing, which I possess; only in the description the word tibiis should be substituted for tarsis. May also be the same as *P. crinicornis* Wied. if the latter has the gray cloud in the middle of the wings, which is not mentioned in the description. (Conf. O. S. Enumer. 48). My (♂) specimen has, on the upper side of the front tibiae, four erect bristles, and two similar bristles on the upper side of the first joint of the front tarsi.

Psilopus. A dozen of specimens in bad condition represent several other species of the genus.

Diaphorus aeneus Dolesch. 1 Bijdr. 7, Tab. XII, f. 1. A single male. The original colored drawing by Doleschall, which I possess, convinces me that it is the same species. The eyes are separated by a very narrow almost linear front: all the pulvilli, but especially those of the front legs, are very large. The conspicuous bristles at the end of the hypopygium prove it to be a *Diaphorus* in the sense of Loew, Monogr. etc. II, 157.

Diaphorus sp. ♂ ♀ With darker wings than the preceding; abdomen metallic-blue with golden-green incisures. Two damaged specimens.

Diaphorus maurus n. sp. ♂ *Eyes of the male contiguous on the front; pulvilli of the front legs enlarged; body brown, with greenish-metallic reflexions; second abdominal segment brownish-yellow; legs brownish-yellow; wings infuscated.* Length $3\frac{3}{4}$ —4 mm.

Face, as well as the small interocular triangle above the antennae, whitish-hoary, although the ground-color is black; palpi brownish-yellow; cilia of the inferior orbit pale whitish-yellow; antennae brownish, third joint very short; arista inserted in an excision at its tip, and therefore nearly apical. The ground color of the mesonotum is dark metallic; dark purplish anteriorly, more or less covered with a delicate brownish pollen; greenish posteriorly; scutellum metallic green or coppery; pleurae black, grayish-hoary; abdomen brown, its second segment brownish-yellow, except its posterior margin, which is brown.

Halteres yellowish brown. Legs brownish-yellow; proximal half of the middle tibiae infuscated; hind legs brown, except the proximal half of the tibiae which is yellowish; underside of the hind femora, on their distal third, beset with a row of rather long hairs. The usual bristles on the hypopygium comparalively short. Wings brownish, especially between the fourth vein and the costa; third and fourth veins parallel, the last section of the fourth is nearly straight, the flexure a little before its middle being almost obsolete; posterior crossvein almost in the middle of the wing. — Two males.

NB. *Diaphorus resumens* Walk. J. Pr. Lin. Soc. III, 93 (Aru Isl.) is apparently a mixture of two different species; the female may perhaps be the same species as my *D. maurus*.

Syrphidae.

Syrphus striatus v. d. Wulp, Sum. Exp. 32, Tab. II, f. 3. Three males.

It is almost impossible to determine the species of the difficult group of *S. ribesii* (to which the present species belongs), without the comparison of typical specimens; nevertheless I am almost sure of my identification, owing to Mr. v. d. Wulp's excellent description and figure. The abdomen is a little broader in my specimens, than the figure shows it to be, and the scutellum has, on its hind margin, a conspicuous fringe of black hairs, which I perceive in the figure although it is not mentioned in the description. The specimens were named by Mr. Walker *S. consequens* Walk. J. Pr. Lin. Soc. I. 18 (Singapore); that they disagree from the description is attributable, I suppose, to its careless wording rather than to a mistake in the identification.

Syrphus, two species, both of the group of *S. balteatus*, but neither is identical with this species. South Eastern Asia seems to contain several species belonging in this same group, such as *S. nectarinus* W. A. Z. II, 128; *alternans* Macq. D. E. II, 2, 89; *heterogaster* Thoms. and *pleuralis* Thoms. Eug. Resa 497—498; *triligatus* Walk. J. Pr. Lin. Soc. I, 19. The true *S. balteatus* occurs in Sumatra (v. d. Wulp, Sumatra Exp. 33). I cannot identify my species with any of the above quoted descriptions; at the same time, the bad state of preservation of my specimens prevents me from describing them.

Prof. Rondani (Ann. Mus. Civ. Genova, VII, 423) identified a species from Borneo with *S. neglectus* Wied. A. Z, II, 134 (patria ignota). I compared his type in Genoa with Wiedemann's description and found that the identification cannot be sustained, being merely based on

Wiedemann's latin diagnosis. As far as I can remember, one of my species is identical with that species of Prof. Rondani's.

Syrphus aegrotus (F.) Wied. (Compare O. S. Enumer., 49). Three specimens, in two of which there is no hyaline space at the base of the wing, a case mentioned by Wiedemann already, as a variety.

Sphaerophoria ♂ ♀, two specimens.

Baccha pedicellata Dol. 1 Bijdr. 9 (Java). One specimen.

Baccha sp. A fragment; the species allied to *B. pedicellata*, but different.

Baccha n. sp. A single male; differs from all the described asiatic species by its uniformly brownish wings.

Ascia sp. A fragment.

Eristalis errans F. A dozen specimens (5 ♂, 7 ♀.)

Eristalis. Three species, represented by one specimen each.

Helophilus ♂ ♀, two specimens (in bad condition). Must resemble *albiceps* v. d. W., but cannot be the same species.

Helophilus celeber n. sp. ♂. *Eyes glabrous, separated by a moderately broad front; thorax with four yellow stripes; abdomen red, with black triangles on the posterior part of segments 2—4; legs yellowish-red; hind tibiae incrassate.* Length 11 mm.

Face silvery, descending straight in the profile from the antennae to the oral margin; a black, shining triangle above the antennae, enclosed between the silvery lower frontal orbits, which meet before the beginning of the narrow portion of the front, and assume there a more golden tinge; the upper, narrower part of the front is black, slightly yellowish-pulverulent in the middle; it gradually expands towards the vertex, where is a little broader than the ocellar triangle. Antennae bright yellowish-red; arista reddish at base, glabrous. Mesonotum with four yellow stripes, contiguous near the posterior margin, in such a way that the intervening three velvet black spaces end in a point posteriorly. Scutellum black (? soiled in the specimen). Abdomen red;

on the first segment a small transverse black spot on each side; on the posterior portion of the second and third a transverse black stripe attenuated on each side and reaching the lateral margin, expanded in the middle in the shape of an obtuse triangle; a black spot or spots, representing a vestige of a similar stripe, on the fourth segment; the large male hypopygium yellowish-red. Legs yellowish-red; hind femora strongly incrassate, brown at tip; hind tibiae strong, arcuate, brown, yellow at base, and with an obsolete yellowish ring in the middle; hind tarsi brownish at tip. Wings with a yellowish tinge. — A single male.

NB. The straight silvery face of this species, neither excavated under the antennae, nor gibbous above the mouth, will render it easily recognizable.

Graptomyza.

This genus was established by Wiedemann (Nov. Dipt. Gen. 1820; and A. Z. II, 206) for *G. longirostris* and *brevirostris* from Java. It is allied to *Volucella*; it has the same characteristic conical prolongation of the face, with a distinct notch at the tip. The principal differences are: the structure of the head, the eyes being separated by a broad front in both sexes, and the venation. The latter resembles that of *Ascia* and *Microdon* in the rectangular curvature of the ends of the fourth and fifth veins; the second vein ends in the costa and not in the first vein; the so-called spurious vein is often absent (especially in the group with a subglabrous arista); sometimes feebly marked. The scutellum shows a characteristic concavity in the middle of the disc. The abdomen is convex, in some species remarkably gibbous; the dorsal plates, on the sides, are more or less curved under the abdomen, as in *Volucella*; but the ventral plates are much smaller than in that genus, the large intervals on both sides being occupied by the connecting membrane, (not unlike *Calliphora*). In the species of the group of *G. ventralis* the abdominal dorsal incisures are very little perceptible, so that the segments seem to be soldered together; this is much less the case in the group of the smaller species.

The antennae have the first joint very short; the second but little longer (like the antennae of *Rhingia* and *Volucella*); the third joint is many times longer than the two first taken together, more or less linear in shape; the upper side in some species is distinctly concave in its outline, the lower one showing a corresponding curvature (see J. Proc. Lin. Soc. I, Tab. VI, f. 4c, the antennae of *G. inclusa* Wk.). The arista, inserted more or less near the base of the third joint, is either distinctly plumose, or microscopically pubescent; whether it is absolutely glabrous in some species (it is represented so in *G. inclusa*) I have not ascertained.

The proboscis seems to be of different length in different species; the labella are long, slender and apparently very movable.

The species *inclusa*, *gibbula*, *meliponaeformis* and *brevirostris* (Arista bare, or microscopically pubescent) are very much alike in coloring, and differ chiefly in the color of the scutellum and of the legs. In the same way *G. ventralis*, *microdon*, and some undescribed species form a natural group, provided with a plumose arista. But *G. tibialis* Wk. is said to have a plumose arista, although, on account of its coloring, it would belong to the first group; *G. interrupta* Wied. on the contrary, is said to have a bare arista, although its coloring would refer it to the second group. And thus a natural grouping cannot to be arrived at. For this reason I do not make use of the genus *Baryterocera* Walk. J. Pr. Lin. Soc. I, 123, Tab. VI, f. 4 with the species *inclusa* (Borneo) for type, which must be very like, if not the same, as *G. brevirostris* Wied.

The following table is prepared principally from descriptions and is therefore liable to error.

Synopsis of the *Graptomyzæ* of the Indo-malayan Archipelago.

Arista bare (or microscopically pubescent).

Wings with black crossbands or spots.

Femora black.

Scutellum black *gibbula* Wk.

Scutellum yellow, w. black margin . *meliponaeformis* Dol.

Femora yellow, with black tips.

brevirostris W.

inclusa Wk.

Wings without black bands or spots.

Prevailing color of the abdomen black *interrupta* W.

Abdomen yellow, with a brown cross-

band and brown spots *literata* n. sp.

Arista plumose.

Abdomen without longitudinal black stripes.

A black stripe on the rostriform pro-
longation of the face.

Femora yellow *ventralis* W.

Front femora with black bands . . *tibialis* Wk.

No black stripe on the rostriform pro-

longation *microdon* n. sp.

Abdomen with longitudinal black stripes.

Abdomen with more than three stripes *longirostris* W.

Abdomen with three black stripes . . *lineata* O. S.

Graptomyza literata n. sp. *Arista* with a microscopic pubescence; abdominal segments 2—4 each with three large brown spots; wings subhyaline, slightly yellowish, unicolorous. Length about 4 mm.

Face brownish-yellow, with a black stripe between the root of the antennae and the edge of the mouth; the sides (under the eyes) also black. Antennae reddish, upper edge of third joint brownish. Thoracic dorsum black, with a bronze-colored metallic reflection; humeral and postalar callosities honey-yellow; scutellum black. Abdomen pale honey-yellow; the three blackish-brown spots on the second segment are contiguous, forming an uninterrupted crossband, whose posterior side is nearly contiguous with the incisure, and the anterior side projects in three lobes, the intermediate one of which is truncate at tip; on the third segment the three spots are subcontiguous; the middle one square, the lateral ones oval and placed obliquely; on the fourth segment the spots are longitudinal, nearly parallel to each other, crossing the segment like three broad stripes; a narrow brown border runs along the lateral margin from the second to the fourth segment, coming in contact with the brown spots on each segment which are nearest to it. Wings subhyaline, slightly yellowish, unicolorous; stigma yellow; veins likewise. Legs: coxae and femora blackish brown, tip of the latter reddish (to a greater extent on the first pair); tibiae reddish-tawny, black at the end; hind tibiae, except the extreme base, altogether black; tarsi reddish-tawny. — One specimen; female?

Graptomyza microdon n. sp. ♂ ♀. *Arista* plumose; abdomen very gibbous; wings yellowish, unicolorous; legs honey-yellow, tips of tarsi and of front and hind tibiae black. — Length about 10—12 mm. (difficult to measure on account of the great curvature of the body).

Face and rostriform epistoma pale honey-yellow; the latter subconically produced, distinctly gibbous, slightly brownish on each side; front more or less brown, yellowish immediately above the antennae; the latter brownish-red, darker along the upper edge of the third segment. Thoracic dorsum yellowish-pubescent; ground color brownish, shining, with some metallescent reflections; humeral and postalar callosities yellowish. Pleurae honey-yellow, with a shining black spot on the mesopleura, connected with the black, shining pectus. Abdomen black, shining, finely punctate and with more or less well marked brownish-yellow crossbands as follows: first segment brownish-yellow, with a black mark on each side, near the hind margin; the anterior half of the second segment is occupied by a curved crossband, reaching

from side to side, but attenuated at both sides, so as to leave the anterior corners of the segment black; it is subinterrupted in the middle; a similar crossband on the third segment is much less distinct (in one of the specimens only its ends are visible, the middle remaining black); the sides of the third segment are brownish-yellow, but this color is partly concealed under a dense, short golden-yellow pubescence; a black triangle occupies the middle and end of the segment. The abdomen is very gibbous and the fourth segment is nearly as long as it is broad, almost circular in shape. Wings unicolorous, with a yellowish tinge; stigma of a more saturate yellow. — Two specimens.

NB. Allied to *G. ventralis* Wied. (II, 207, Java), which however has three black stripes on the rostriform epistoma, altogether black tibiae, a differently colored abdomen etc.

G. tibialis Wk. J. Pr. Lin. Soc. III, 95 and IV, 118 (Celebes) also seems to belong in this group, but has a black line on the rostrum; „tibiae and anterior femora with black bands.“ The specimen from Java, mentioned by me in the Enumer. etc. 51 likewise belongs here, but has the femora (except at the tip) black.

The color of the front and of the abdomen of *G. microdon* must be variable; it is different even in my two specimens. The gibbous abdomen and the shape of its fourth segment remind one of *Microdon*.

Graptomyza spec.; one specimen. Must resemble *G. ventralis* Wied. II, 207 (Java) very much, especially in the characteristic yellow stripes, parallel to the lateral abdominal margin, on each side; but the proximal half of the femora is black, the tarsi altogether black; the rostriform epistoma has only a very weak median brown stripe and no perceptible gibbosity; the median yellow stripe on the abdomen is wanting etc. As it is evident that the species of this group are variable in their coloring, it is necessary to ascertain the possible limits of this variation, before describing many new species.

(Fortsetzung im nächsten Heft.)